

INSTRUCTION MANUAL



KEPCO An ISO 9001 Company.

KT
SENSE RESISTOR
KT 3126-3130S
KT 3130-3131S

CURRENT SENSING RESISTORS

GENERAL DESCRIPTION (Refer to Figures 1 and 2)

Kepeco Model KT 3126-3130S and KT 3130-3131S Current Sensing Resistors are precision, wire-wound components with low temperature coefficients and integral heatsink used for calibrating Kepeco Power Supplies

TABLE 1. KEPCO SENSING RESISTORS

MODEL	RESISTANCE (OHMS)	RECOMMENDED OUTPUT CURRENT RANGE		TERMINATION	OUTLINE DIMENSIONS
		LOW	HIGH		
KT 3126-3130S		0.5A TO 20A		SCREW	8"L X 4.4"W X 1.75"H
RS1	0.1	0.5A	8A		
RS2	0.01	8A	25A		
KT 3130-3131S		10A TO 100A		SCREW	8"L X 4.4"W X 1.75"H
RS1	0.01	8A	25A		
RS2	0.001	25A	100A		

SENSING RESISTOR SELECTION

The value of the sensing resistor (R_S) is selected according to the desired output current range, such that a 1-volt sample is provided at the maximum output current (I_O MAX):

$$R_S = \frac{1 \text{ Volt}}{I_{O \text{ Max}}} \text{ (See Table 1 for values.)}$$

INSTALLATION

Refer to Figure 1 for Sense Resistor connections. The two sense resistors are mounted on a heat sink. **If the actual power dissipation (MAXIMUM OUTPUT CURRENT TIMES ONE VOLT) exceeds one-tenth of the power rating, additional cooling by means of an air stream or an oil-bath should be provided to keep the heat-rise in the sensing resistor to a minimum.** To minimize output ripple ("pick-up") mount the sensing resistor assembly as close to the power supply as practicable. Use shielded cable to connect the current control resistor to the null junction of the power supply and connect the shield (single-ended) to the common signal ground.

INTERCONNECTIONS

The simplified connecting diagram (refer to Figure 2) shows the electrical connection of the Sensing Resistors to a typical Kepeco Power Supply. The nomenclature used in the diagram coincides with that used on all Kepeco Power Supplies. Refer to your Kepeco Instruction Manual when in doubt about interconnections or terminal designations.

CALIBRATION

The sense resistors are calibrated at Kepeco. A label installed on the heatsink for RS1 and RS2 shows actual resistance at various current ratings. For example, label for the 0.01 ohm resistor shows the calibrated resistance for operation between 1A and 8A, between 8A and 15A, and between 15A and 25A. This means that if you are testing a 10 Ampere power supply (e.g., BOP 20-10-4886) use the 0.01 ohm resistor and use the resistance recorded for between 8 and 15 Amperes.

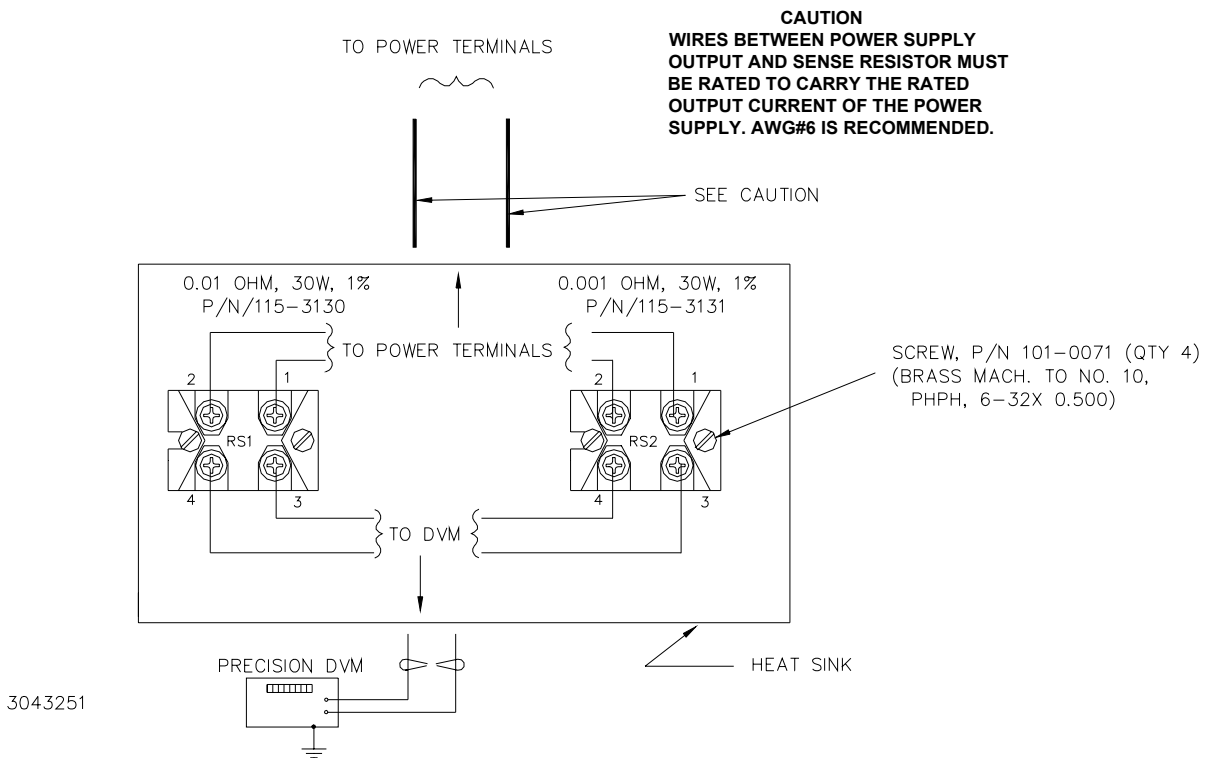


FIGURE 1. SENSE RESISTOR CONNECTIONS

INOTE: If the load must be protected from excessive compliance (output) voltage, a zener diode, rated to conduct at the desired voltage, should be connected as shown in FIG. 2.

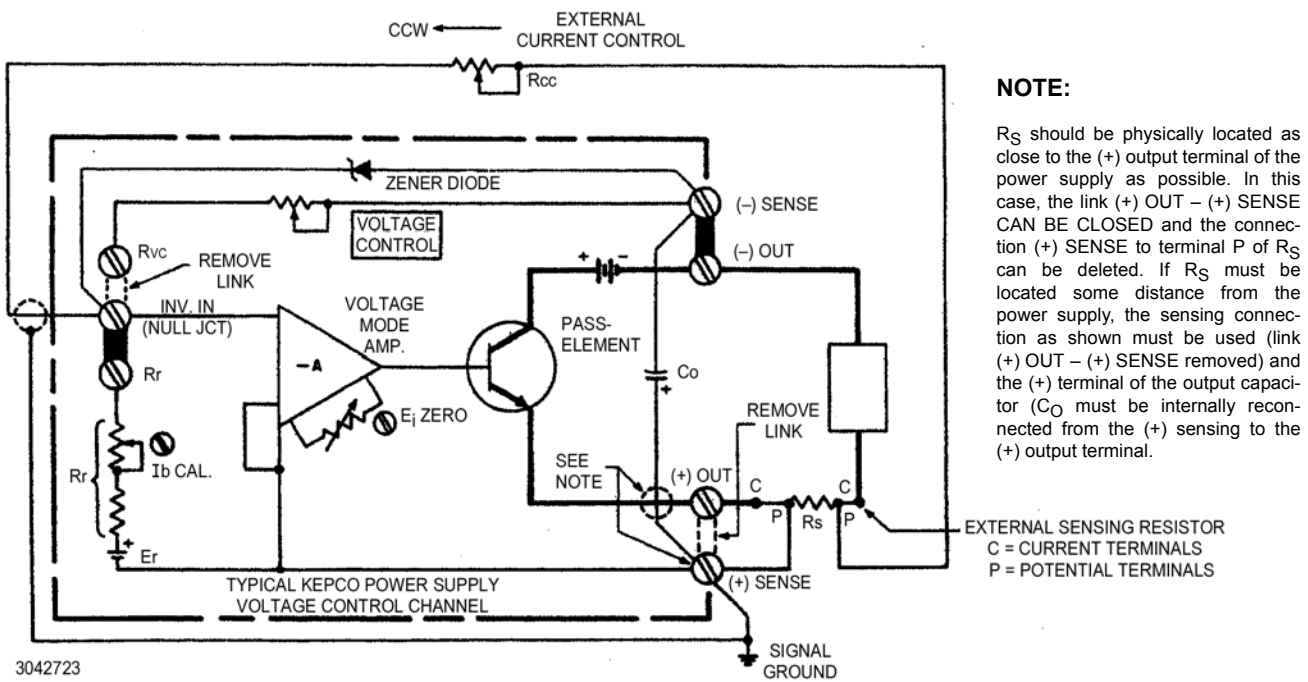


FIGURE 2. EXTERNAL CURRENT SENSING AND CONTROL USING THE VOLTAGE MODE AMPLIFIER